Digital Tuner 70FT920/

00S/01S/05S

Service
Service
Service

Service Manual

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GB 4822 725 23906

PHILIPS

PHILIPS

SPECIFICATION
General:

Mains voltage	: 220V 50Hz for/00 : 240V 50Hz for/05 : 120/230V 50Hz for/01
Power consumption	: ≤8 W power on : ≤7 W stand by
Dimensions:(wxhxd)	: 435x90x300 mm

Tuner: FM Part

Tuning range	: 87,5MHz to 108MHz
Aerial input	: 75Ω coaxiaal
IF	: 10,7MHz ±25kHz
Sensitivity mono	: 1,1μV 26dB S/R
stereo	: 45 μV 50dB S/R
Selectivity	: 60 dB at 300kHz
Channel separation	: 40 dB (1kHz Mod.)
Distortion THD mono	: 0,5 %
stereo	: 0,7 %
Signal/noise ratio mono	: 75 dB IEC weighted
stereo	: 71 dB " "
Output	: 950 mV byΔf75kHz

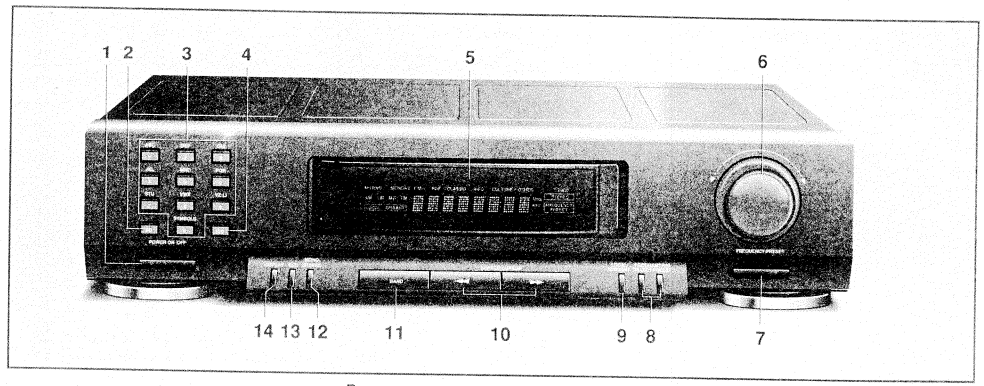
AM PART

Tuning range MW	: 522kHz to 1611kHz : 530kHz to 1710kHz (only/01)
LW	: 153kHz to 279kHz
Aerial input	: Frame aerial
IF	: 450kHz ± 1kHz
Sensitivity	: 1mV/m for 26dB S/R
Selectivity	: 30dB at 9kHZ
Suppression IF	: 60dB

Digital Part

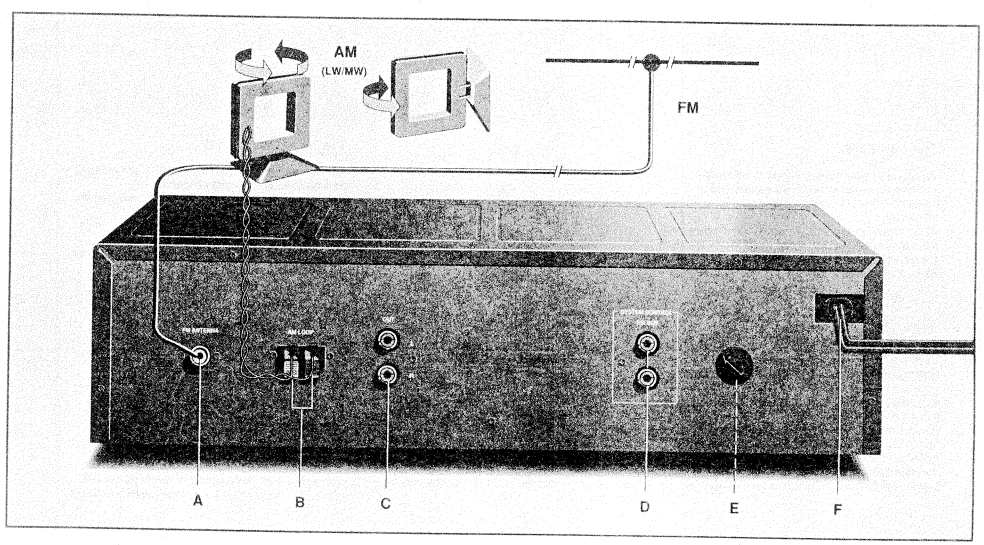
Switcheable FM/MW/LW	: 50kHz/ 9kHz/ 3kHz (aut./man.)
Presets FM/MW/LW	: 30 random

CONTROLS

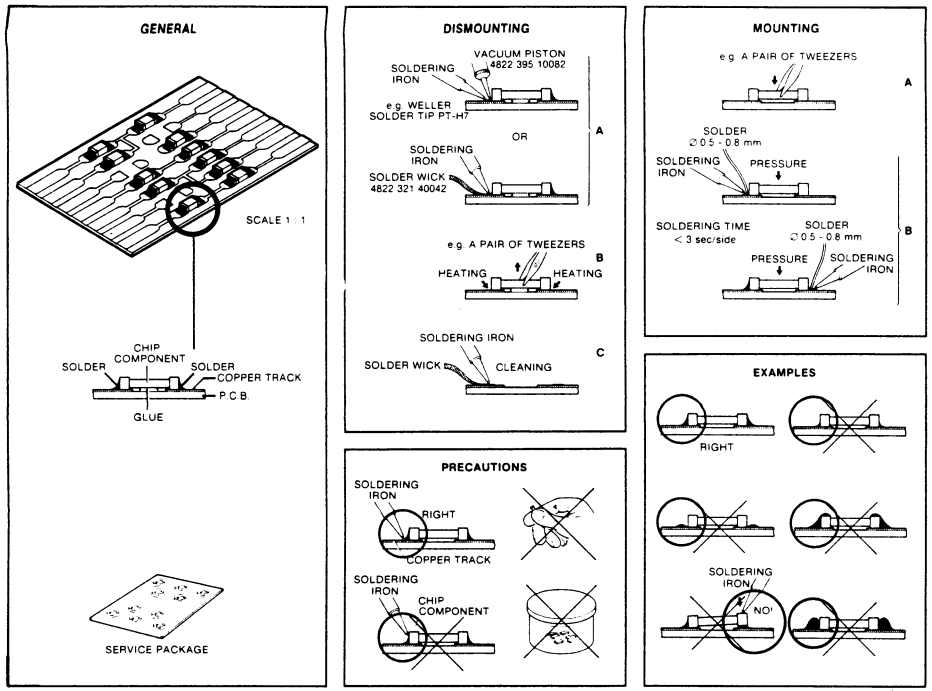


		Pos nr.
1	Power on/off	1401
2	Freq.direct	1483
3	Presets	
	Preset N° 1	1466
	Preset N° 2	1467
	Preset N° 3	1468
	Preset N° 4	1469
	Preset N° 5	1470
	Preset N° 6	1471
	Preset N° 7	1472
	Preset N° 8	1473
	Preset N° 9	1474
	Preset N° 0	1465
4	Memory Open/Close	1482
5	DISPLAY	
6	Freq./Preset Rotary knob	1495
7	Freq./Preset	1485
8	Prog. select	1487
	Prog. preset	1475
9	Local Distant	1476
10	Search down	1481
	Search up	1480
11	Waveband	1477
12	Mono/stereo	1484
13	SND: Station Name Display	1486
14	Display	1478

CONNECTIONS



A	Aerial socket FM
B	Frame aerial AM
C	Tuner out
D	Easy link (in/out)
E	Voltage selector (only/01)
F	Fixed mainscord



27 012C12

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

SERVICE TEST PROGRAM

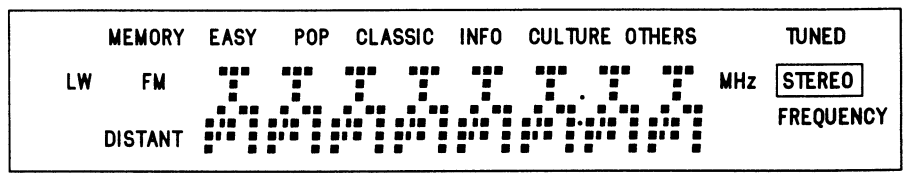
To go in test mode press the **MONO** and the **SEARCH DOWN** switch at the same time when Tuner is switched on.

The display comming up on STEP 1
For changing from one step to another press any key.

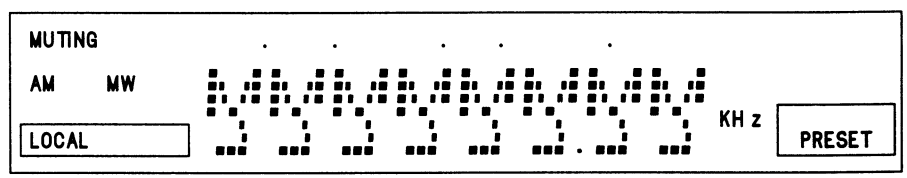
Display and Port test:

Display test:

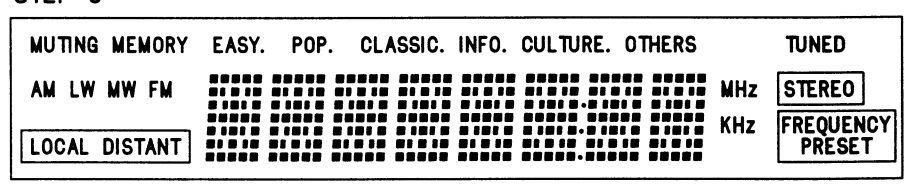
STEP 1



STEP 2



STEP 3



Port test

For changing from one step to another press any key.

PORT	0	8			1				2				7		9	
Pin IC7471	23	42	43	45	28	29	30	31	33	34	35	36	38	40	44	47
STEP 1	1	1	1	0	1	1	1	1	1	1	1	0	0	0	1	1
STEP 2	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0
STEP 3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Key Test and Input port test

To go in this test mode press the **MONO** *and* **BAND** *switch*
at the same time when tuner is switched on.

Bottoms	Display	Bottoms	Display
Scan	40F	Freq.up	2AF
Waveband FM	41F	Freq.down	2BF
Mono/Stereo	49F	Preset 0	20F
Preset up	43F	Preset 1	21F
Preset down	44F	Preset 2	22F
Menory	4CF	Preset 3	23F
Frequency direct	4FF	Preset 4	24F
Station name	48F	Preset 5	25F
Select programtype	42F	Preset 6	26F
Preset programtype	46F	Preset 7	27F
Frequency/preset	8AF	Preset 8	28F
Na/Fr/Ti	2CF	Preset 9	29F
Local/Distant	8BF		

WARNINGS

GB

Safety regulations require thatthe set be restored to its original condition and that parts which are identical with those specified be used.

NL
Veiligheidsbepalingen vereisen dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

I

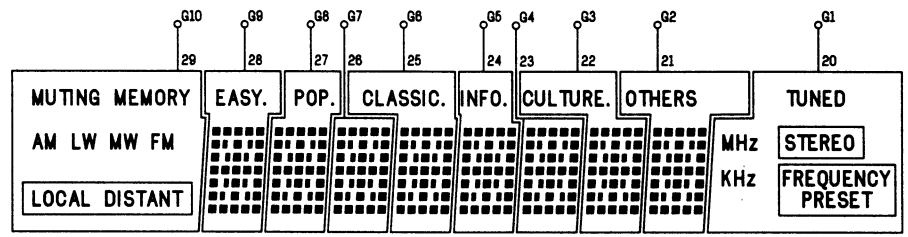
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizione originali e che iano utilizzati pezzi di ricambiago identici a quelli specificati.

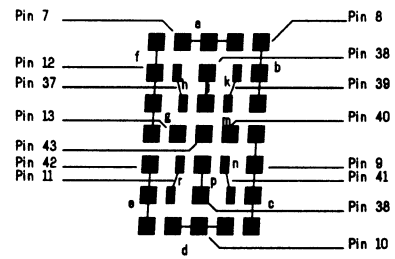
F

Les normes de sécurité exigent que lappareil soit remis à létat d'origine et que soient utilisées les pieces de rechange identiques à celles spécifiées.

Pour votre sécurité, ces documents doivent etre utilisés par des specialistes agrées, seuls habilités à réparer votre appareil en panne.

GRID ASSIGMENT



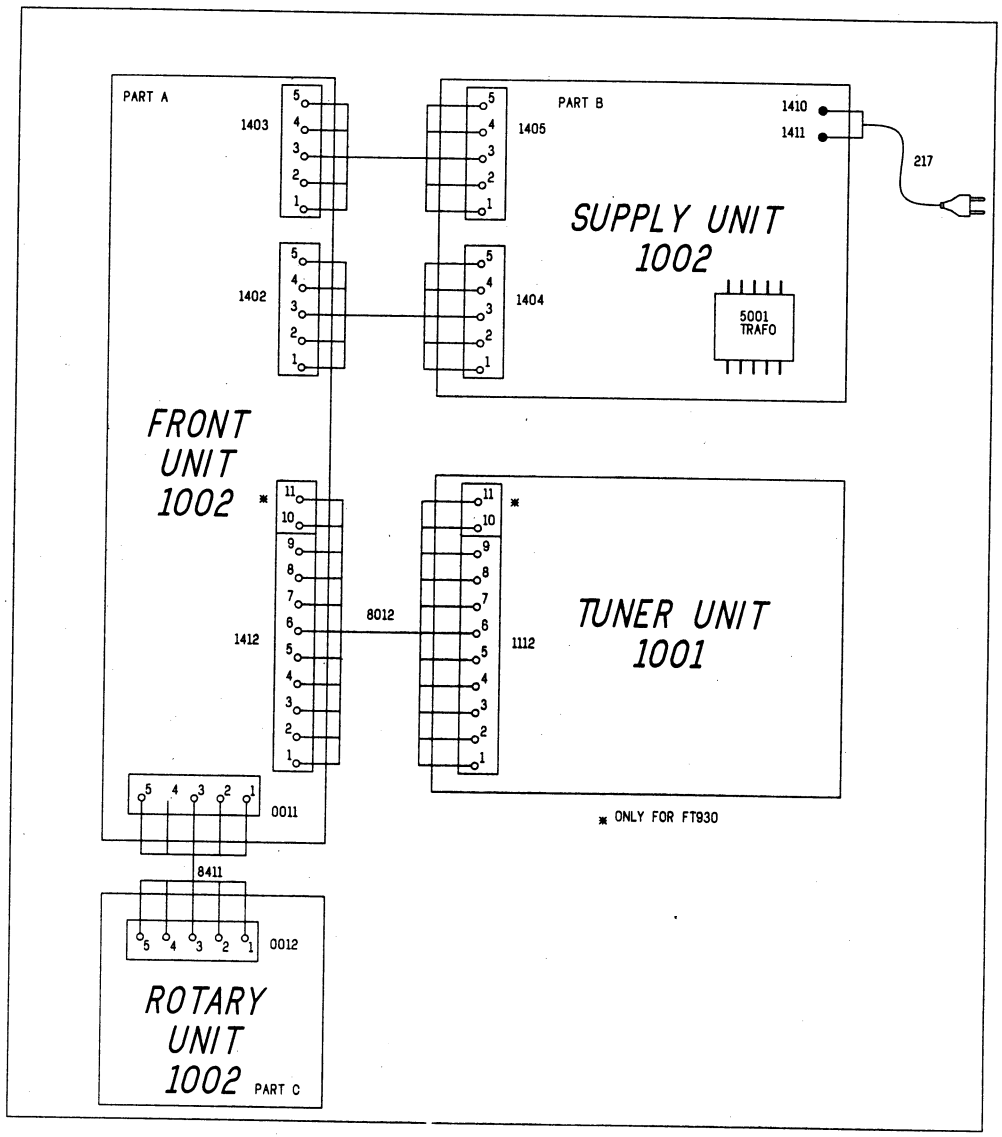


PIN CONNECTION

PIN NO	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNEC	F 2	F 2	N P	N P	P 16	P 15	P 14	P 13	P 12	P 11	P 10	N C	N C	N C	N C	N C	N C	N C	10 G	9 G	8 G	7 G	6 G	5 G	4 G	3 G	2 G	1 G	N C	N C	N C	N C	N C	N C	P 9	P 8	P 7	P 6	P 5	P 4	P 3	P 2	P 1	N P	N P	F 1	F 1

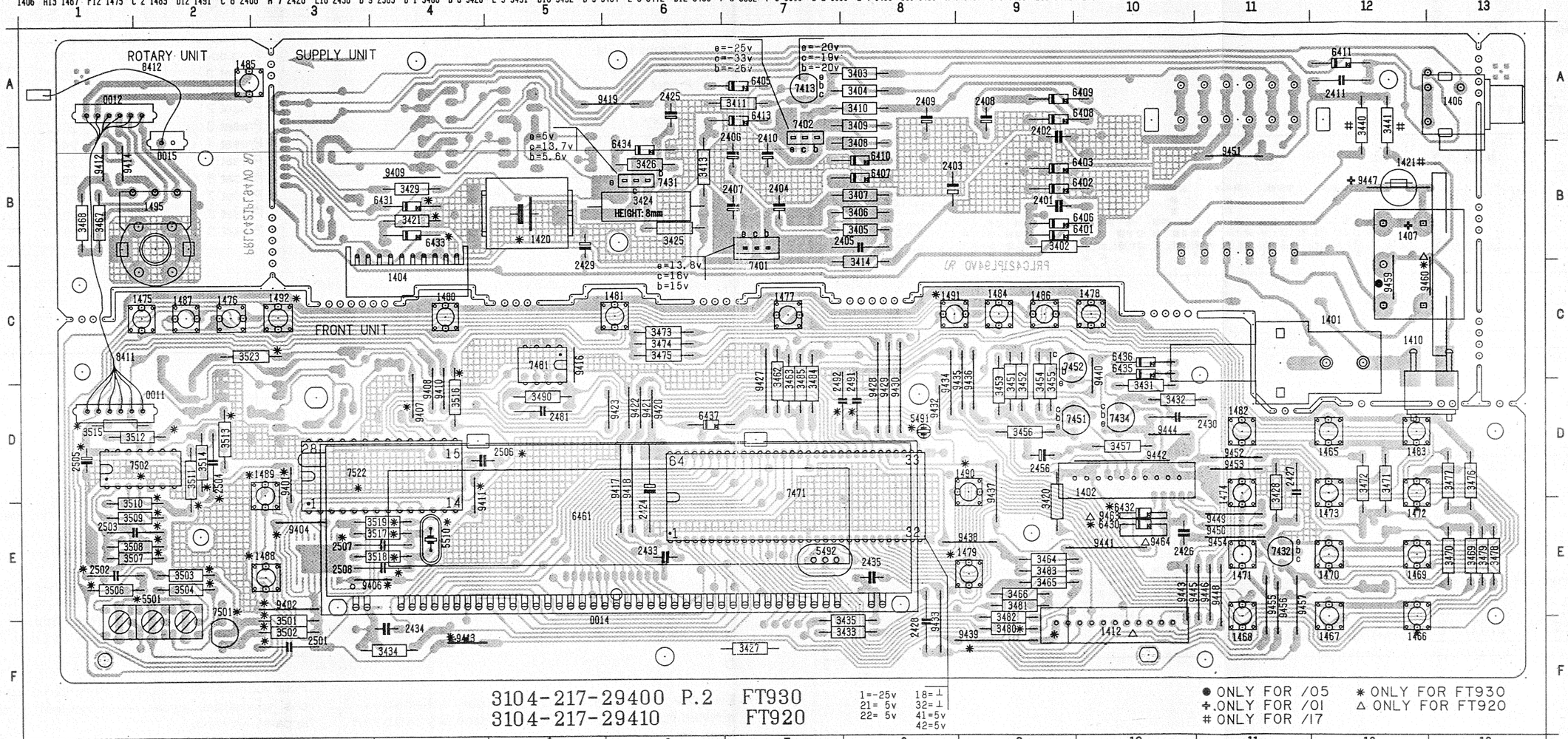
ANODE CONNECTION

	G10	G9	G8	G7	G6	G5	G4	G3	G2	G1
P1	-	EASY	POP	-	CLASSIC	INFO		CULTURE	OTHERS	TUNED
P2	MUTING	▪	▪	-	▪	▪	▪	▪	-	-
P3	MEMORY	a	a	a	a	a	a	a	a	-
P4	AM	b	b	b	b	b	b	b	b	-
P5	LW	c	c	c	c	c	c	c	c	-
P6	MW	d	d	d	d	d	d	d	d	-
P7	-	e	e	e	e	e	e	e	e	MHz
P8	-	f	f	f	f	f	f	f	f	kHz
P9	-	g	g	g	g	g	g	g	g	STEREO
P10	-	h	h	h	h	h	h	h	h	PRESET
P11	-	j.p	j.p	j.p	j.p	j.p	j.p	j.p	j.p	FREQENCY
P12	-	k	k	k	k	k	k	k	k	
P13	FM	m	m	m	m	m	m	m	m	-
P14	LOCAL	n	n	n	n	n	n	n	n	-
P15	DISTANT	r	r	r	r	r	r	r	r	-
P16		t	t	t	t	t	t	t	t	


PART A
1403
1402
1412
1405
1404
1112
PART B
1410
1411
217
SUPPLY UNIT
1002
5001
TRAFO
FRONT
UNIT
1002
8012
TUNER UNIT
1001
0011
8411
0012
ROTARY
UNIT
1002
PART C
* ONLY FOR FT930

0011 D 2 1407 B12 1468 F11 1476 C 2 1484 C 9 1492 C 3 2407 B 7 2427 D11 2481 D 5 2506 D 5 3407 B 8 3421 B 4 3432 D10 3453 D 9 3465 E 9 3473 C 6 3481 E 9 3503 E 2 3512 D 2 3523 C 2 6405 A 7 6430 E10 6461 E 5 7452 C 9 9404 E 3 9413 F 4 9422 D 6 9434 D 8 9442 D10 9450 E11 9459 C12
0012 A 1 1410 C12 1469 E12 1477 C 7 1485 A 2 1495 B 2 2408 A 9 2428 F 8 2491 D 8 2507 E 3 3408 B 8 3424 B 6 3433 F 8 3454 D 9 3466 E 9 3474 C 6 3482 F 9 3504 E 2 3513 D 2 5491 D 8 6406 B10 6431 B 4 7401 C 7 7471 D 7 9406 E 3 9414 B 1 9423 D 6 9435 D 9 9443 E10 9451 B11 9460 C13
0014 F 5 1412 F10 1470 E12 1478 C10 1486 C 9 2401 B 9 2409 A 8 2429 C 5 2492 D 7 2508 E 3 3409 A 8 3425 B 6 3434 F 4 3455 D 9 3467 B 1 3475 C 6 3483 E 9 3506 E 1 3514 D 2 5492 E 7 6407 B 8 6432 A10 6433 B 4 7413 A 7 7481 C 5 9407 D 4 9416 C 5 9427 C 7 9436 D 9 9444 D10 9452 D11 9463 E10
0015 B 2 1420 B 5 1471 E11 1479 E 9 1487 C 2 2402 A 9 2410 A 7 2430 D11 2501 F 3 3402 B 9 3410 A 8 3426 B 6 3435 F 8 3456 D 9 3468 D10 3469 E13 3477 C 7 3508 E 1 3516 D 4 5510 E 4 6409 A10 6434 B 6 7431 C 7 7501 E 2 9408 D 2 9409 D 6 9428 D 8 9437 D 9 9445 E11 9453 D11 9464 E10
1401 C12 1421 B12 1472 E12 1480 C 4 1488 E 3 2403 B 8 2411 A12 2433 E 6 2502 E 1 3403 A 8 3411 A 7 3427 F 7 3440 A12 3457 D10 3469 C 7 3471 D12 3479 E13 3490 D 5 3509 E 1 3517 E 4 6401 B10 6410 E 4 6409 A10 6434 B 6 7431 C10 7432 E11 7522 D 3 9410 D 4 9418 D 6 9429 D 8 9438 F 9 9447 B12 9455 E11
1402 D10 1465 D12 1473 E12 1481 C 6 1489 D 3 2404 B 7 2424 E 6 2434 F 4 2503 E 1 3404 A 8 3413 B 6 3428 D11 3441 A12 3462 C 7 3470 E13 3478 E13 3490 D 5 3509 E 1 3517 E 4 6401 B10 6410 E 4 6402 B10 6411 A12 6436 C10 7434 D10 9401 D 3 9411 D 4 9420 D 6 9432 D 8 9440 C10 9448 E11 9456
1404 C 4 1466 F12 1474 D11 1482 D11 1490 D 9 2405 B 8 2425 A 6 2435 E 8 2504 D 9 2505 D 1 3406 B 8 3420 E 9 3431 D10 3452 D 9 3464 E 9 3472 D12 3480 F 9 3502 F 3 3511 D 2 3519 E 4 6403 B10 6413 A 7 6437 D 6 7451 D10 9402 E 3 9412 B 1 9421 D 6 9433 F 8 9441 E10 9449 E11 9457
1406 A13 1467 F12 1475 C 2 1483 D12 1491 C 8 2406 A 7 2426 E10 2456 D 9 2505 D 1 3406 B 8 3420 E 9 3431 D10 3452 D 9 3464 E 9 3472 D12 3480 F 9 3502 F 3 3511 D 2 3519 E 4 6403 B10 6413 A 7 6437 D 6 7451 D10 9402 E 3 9412 B 1 9421 D 6 9433 F 8 9441 E10 9449 E11 9457

1 2 3 4 5 6 7 8 9 10 11 12 13

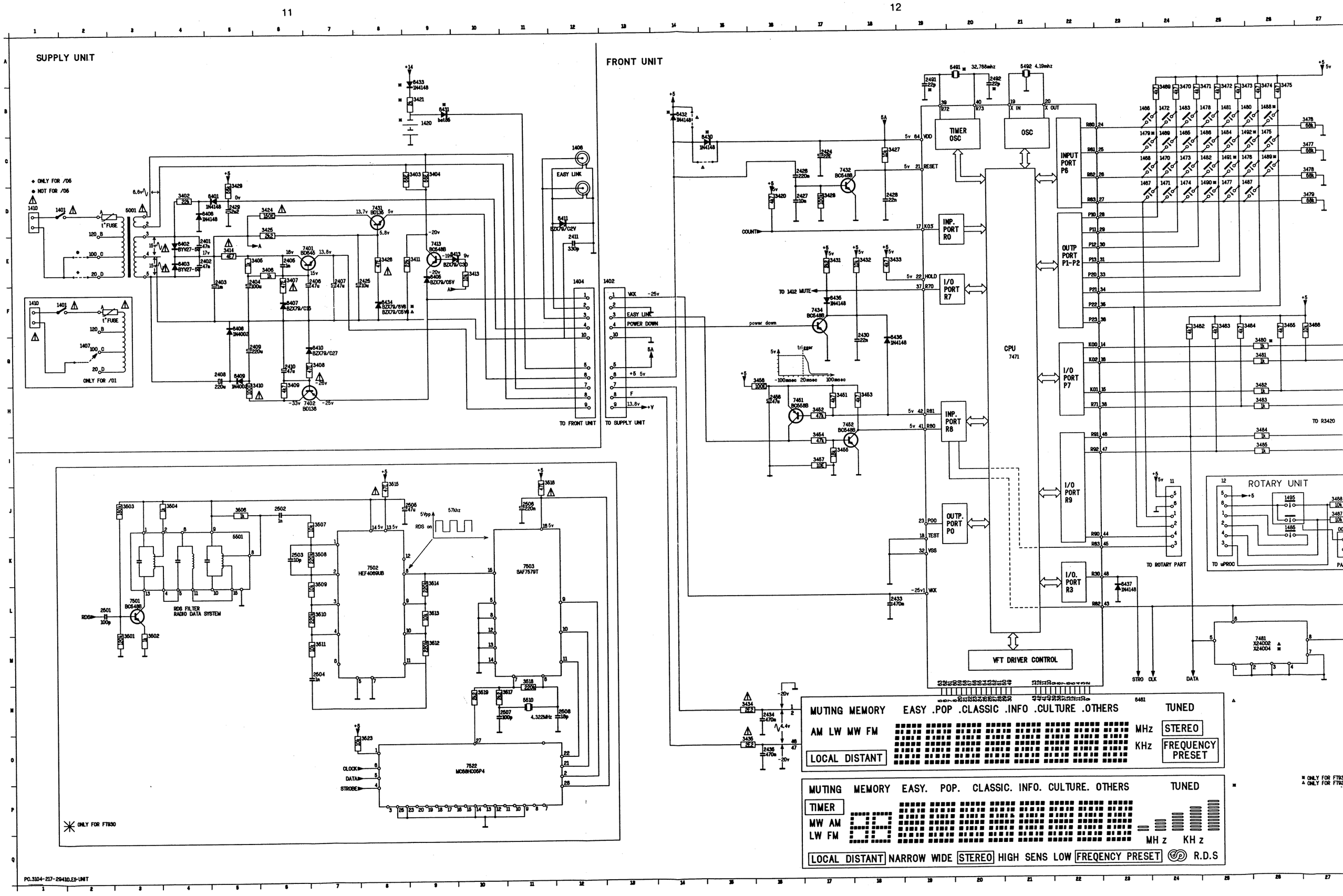


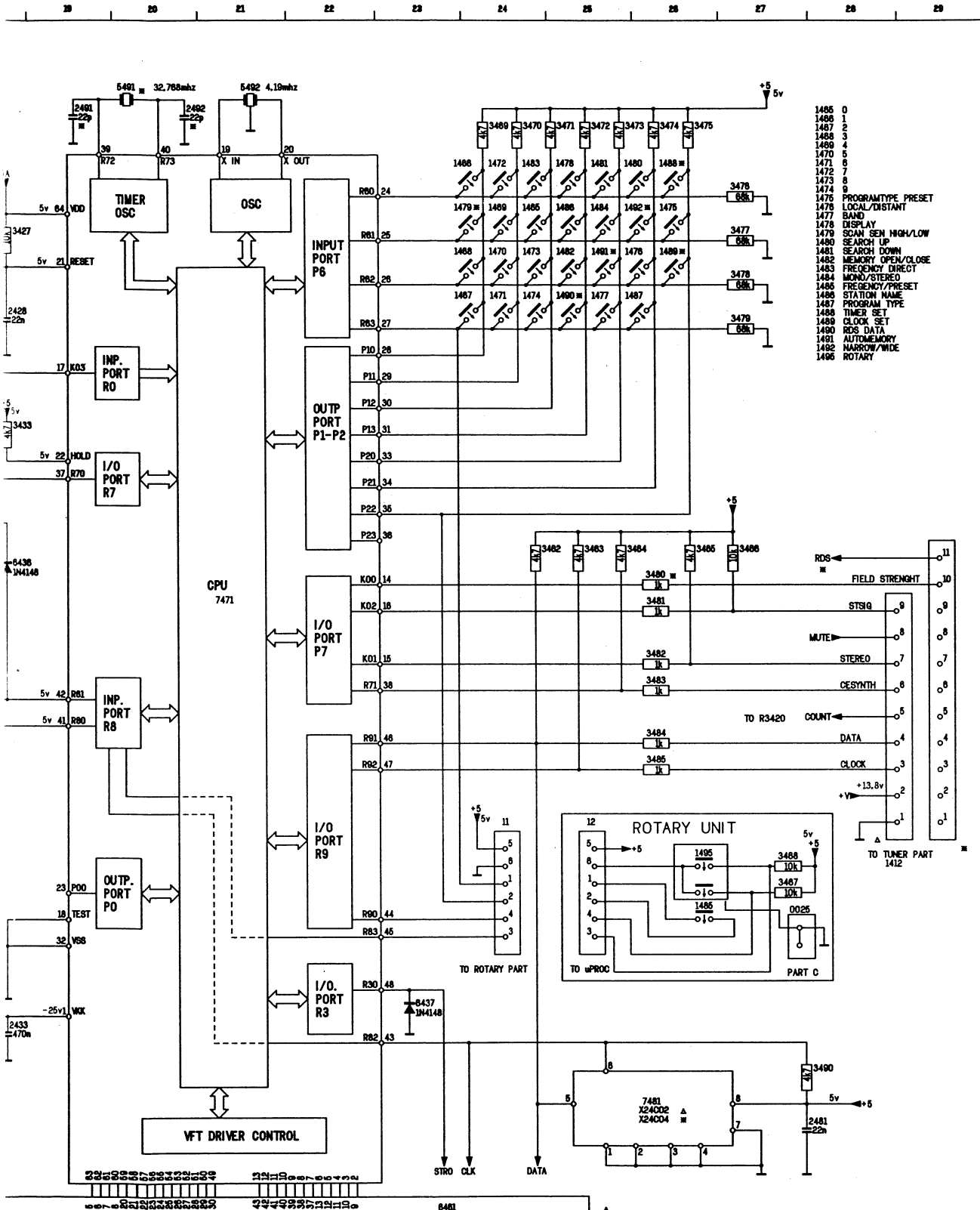
3104-217-29400 P.2 FT930
3104-217-29410 FT920

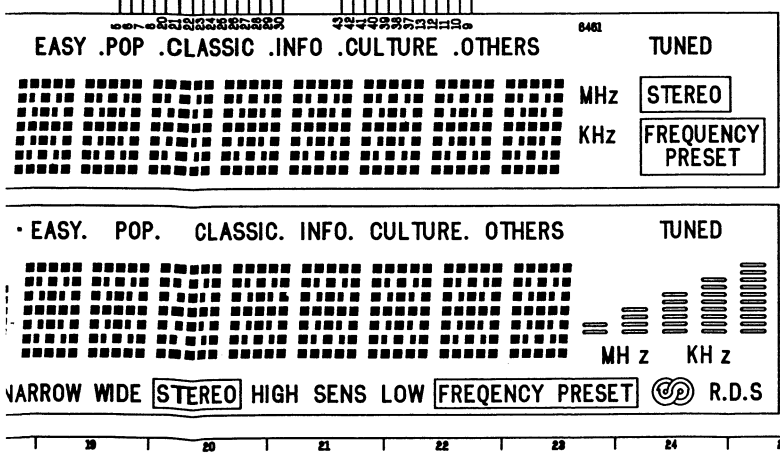
1=-25v 18=⊥
21= 5v 32=⊥
22= 5v 41=5v
42=5v

● ONLY FOR /05 ✱ ONLY FOR FT930
✚ ONLY FOR /01 △ ONLY FOR FT920
ONLY FOR /17

217

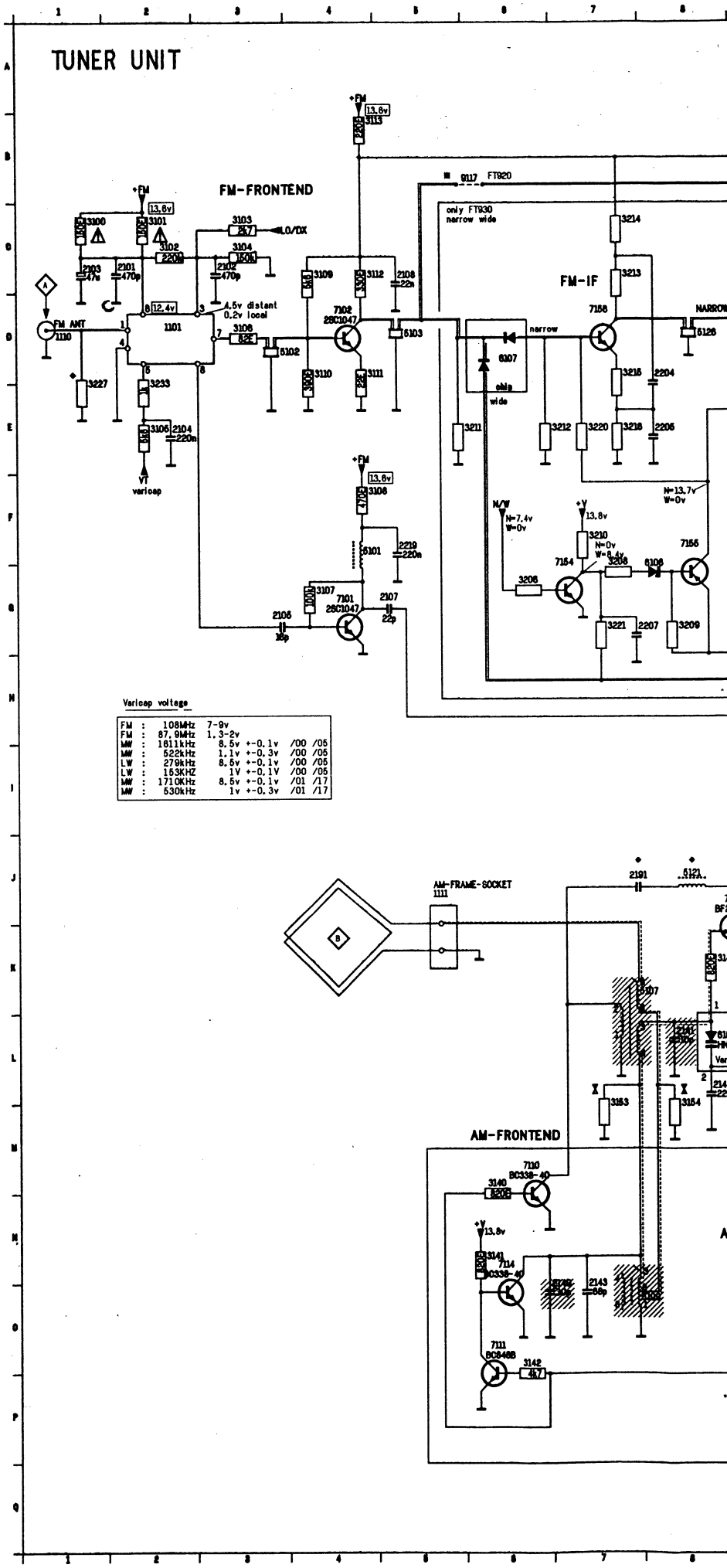

11
12
SUPPLY UNIT
FRONT UNIT
ONLY FOR /05
NOT FOR /05
ONLY FOR /01
EASY LINK
TO FRONT UNIT
TO SUPPLY UNIT
POWER DOWN
TIMER OSC
OSC
INPUT PORT P6
OUTP PORT P1-P2
I/O PORT P7
I/O PORT R9
I/O. PORT R3
INP. PORT R0
I/O PORT R7
INP. PORT R8
OUTP. PORT P0
CPU
7471
VFT DRIVER CONTROL
TO ROTARY PART
ROTARY UNIT
TO uPROC
TO R3420
RDS FILTER
RADIO DATA SYSTEM
7502
HEF4069UB
7503
SAF7579T
7522
MC68HC05P4
ONLY FOR FT930
MUTING MEMORY
EASY .POP .CLASSIC .INFO .CULTURE .OTHERS
TUNED
AM LW MW FM
MHz
STEREO
KHz
FREQUENCY PRESET
LOCAL DISTANT
MUTING MEMORY EASY. POP. CLASSIC. INFO. CULTURE. OTHERS
TUNED
TIMER
MW AM
LW FM
MH z
KH z
LOCAL DISTANT NARROW WIDE STEREO HIGH SENS LOW FREQENCY PRESET
R.D.S
PC.3104-217-29410.E8-UNIT





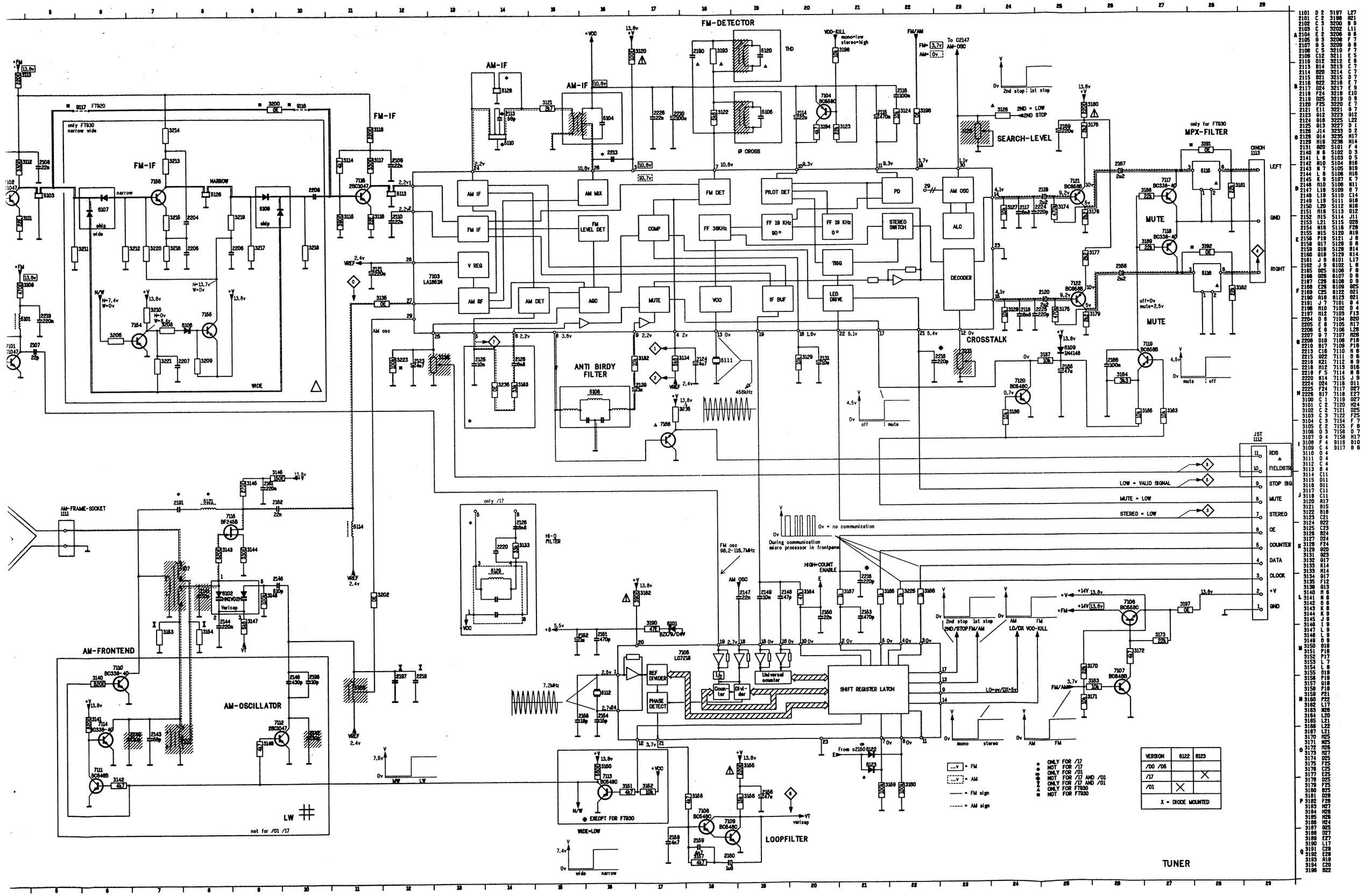
* ONLY FOR FT930 UNIT 3104 217 29400
△ ONLY FOR FT920 UNIT 3104 217 29410

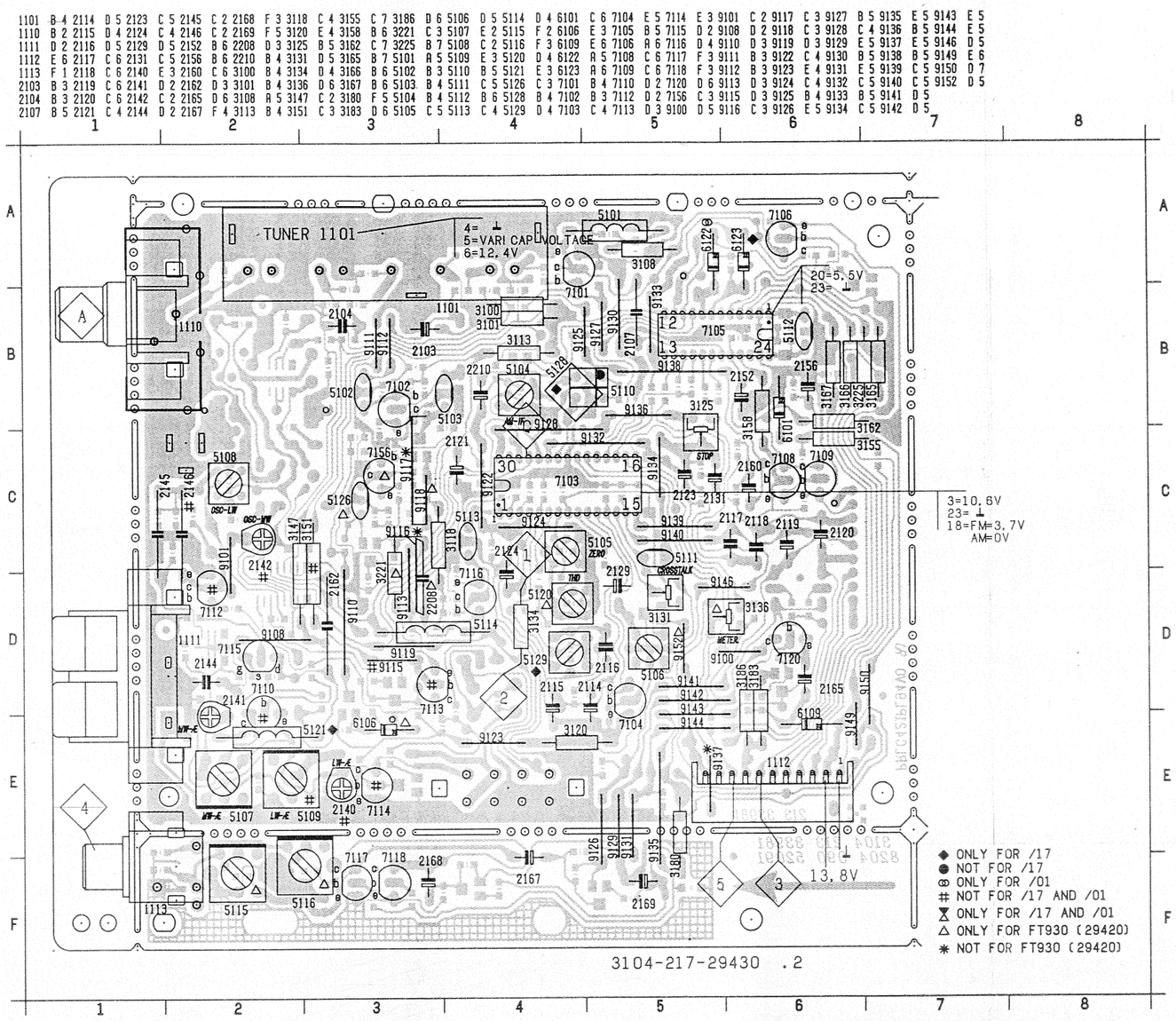
TUNER UNIT



Varicap voltage

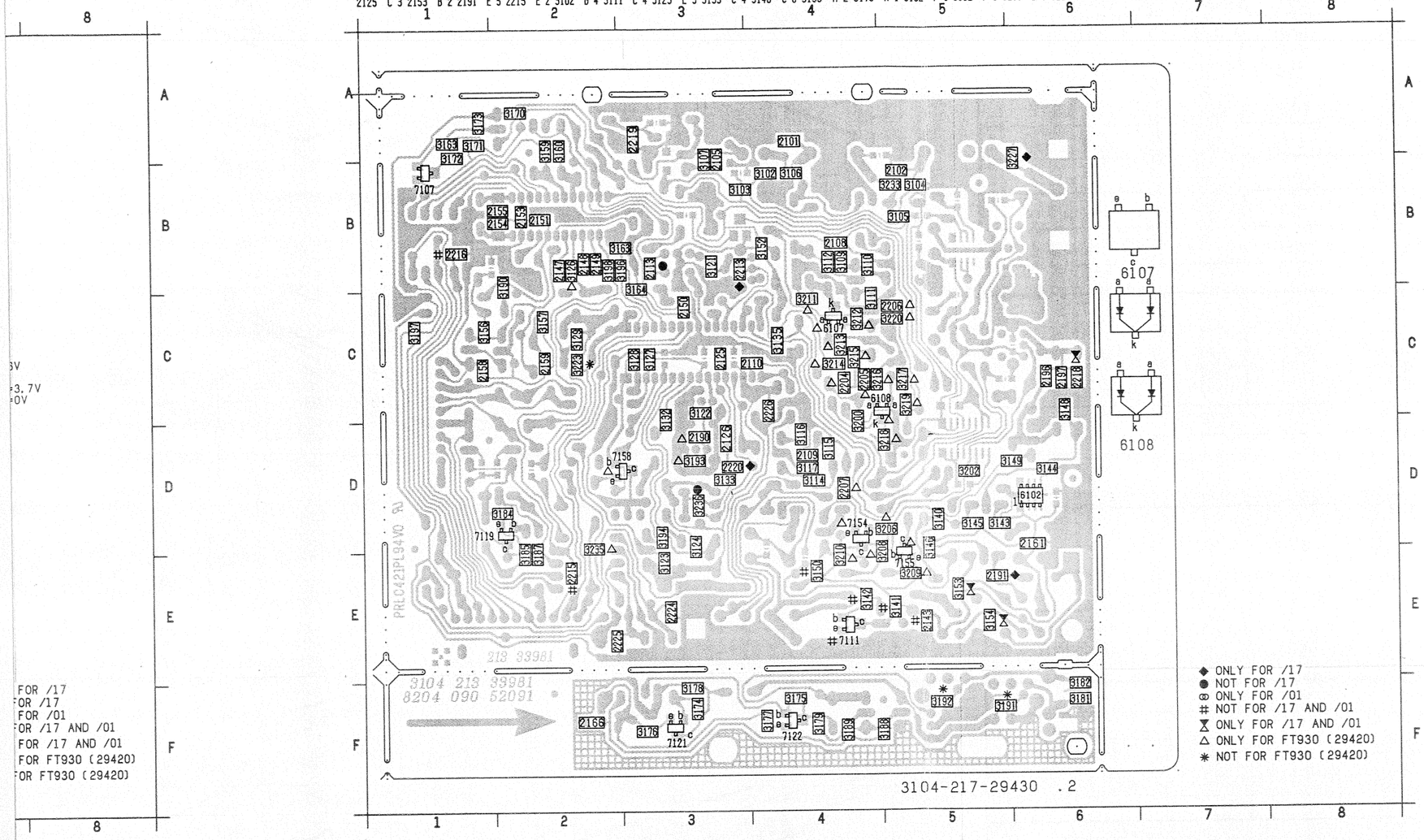
FM	:	108MHz	7-9v		
FM	:	87.9MHz	1.3-2v		
MW	:	1611kHz	8.5v	+-0.1v	/00 /05
MW	:	522kHz	1.1v	+-0.3v	/00 /05
LW	:	279kHz	8.5v	+-0.1v	/00 /05
LW	:	153KHZ	1V	+-0.1V	/00 /05
MW	:	1710KHz	8.5v	+-0.1v	/01 /17
MW	:	530kHz	1v	+-0.3v	/01 /17


FM-DETECTOR
AM-IF
FM-IF
SEARCH-LEVEL
MPX-FILTER
CROSSTALK
ANTI BIRDY FILTER
AM-FRONTEND
AM-OSCILLATOR
LOOPFILTER
TUNER
AM-FRAME-SOCKET
LEFT
GND
RIGHT
MUTE
RDS
FIELDSTR
STOP SIG
MUTE
STEREO
CE
COUNTER
DATA
CLOCK
+V
GND
LOW = VALID SIGNAL
MUTE = LOW
STEREO = LOW
AM IF
FM IF
V REG
AM RF
AM MIX
FM LEVEL DET
AM DET
AGC
COMP
FM DET
FF 38KHz
MUTE
VCO
PILOT DET
FF 19 KHz 90°
FF 19 KHz 0°
TRIG
IF BUF
LED DRIVE
PD
STEREO SWITCH
AM OSC
ALC
DECODER
REF DIVIDER
PHASE DETECT
Counter
Divider
Universal counter
SHIFT REGISTER LATCH
EXECPT FOR FT930
WIDE=LOW
LW
not for /01 /17
VERSION
6122
6123
/00 /05
/17
/01
X = DIODE MOUNTED
ONLY FOR /17
NOT FOR /17
ONLY FOR /01
NOT FOR /17 AND /01
ONLY FOR /17 AND /01
ONLY FOR FT930
NOT FOR FT930
= FM sign
= AM sign


TUNER 1101
4=
5=VARI CAP VOLTAGE
6=12.4V
20=5.5V
23=
3=10.6V
23=
18=FM=3.7V
AM=0V
13.8V
◆ ONLY FOR /17
● NOT FOR /17
⊛ ONLY FOR /01
NOT FOR /17 AND /01
⧖ ONLY FOR /17 AND /01
△ ONLY FOR FT930 (29420)
✱ NOT FOR FT930 (29420)
3104-217-29430 .2

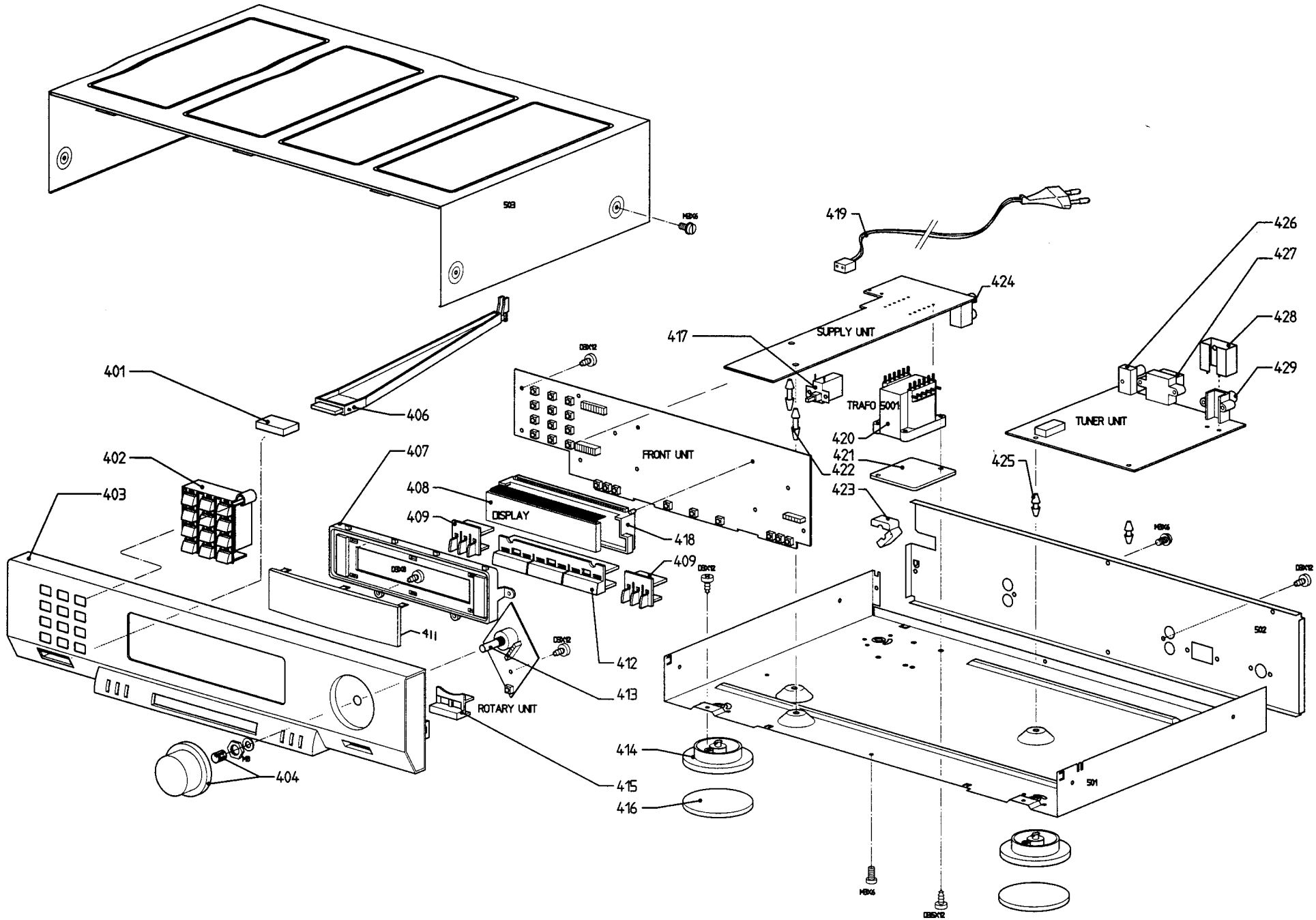
3104 213 33981
8204 090 52091
3104-217-29430

2101	A 4 2126	D 3 2154	B 2 2196	C 6 2216	B 1 3103	B 3 3112	B 4 3124	D 3 3140	D 5 3149	D 6 3160	A 2 3174	F 3 3184	D 2 3193	D 3 3208	E 4 3216	C 4 3235	D 2 7121	F 3
2102	B 5 2143	E 5 2155	B 2 2197	C 6 2218	C 6 3104	B 5 3114	D 4 3126	B 2 3141	E 5 3150	E 4 3163	B 3 3175	F 4 3185	E 2 3194	D 3 3209	E 5 3217	C 5 3236	D 3 7122	F 4
2105	A 3 2147	B 2 2158	C 1 2204	C 4 2219	A 3 3105	B 5 3115	D 4 3127	C 3 3142	E 4 3152	B 4 3163	A 1 3176	F 3 3187	E 2 3196	B 3 3210	E 4 3218	D 5 6102	D 6 7154	D 4
2108	B 4 2148	B 2 2159	C 2 2205	C 4 2220	D 3 3106	B 4 3116	D 4 3128	C 3 3143	D 5 3153	E 5 3164	B 3 3177	F 4 3188	F 4 3197	C 1 3211	C 4 3219	C 5 6107	C 4 7155	E 5
2109	D 4 2149	B 2 2161	D 6 2206	C 5 2224	E 3 3107	A 3 3117	D 4 3129	C 2 3144	D 6 3154	E 5 3170	A 2 3178	F 3 3189	F 4 3198	B 2 3212	C 4 3220	C 5 6108	C 5 7158	D 3
2110	C 4 2150	C 3 2166	F 2 2207	D 4 2225	E 2 3109	B 4 3121	B 3 3132	C 3 3145	D 5 3156	C 1 3171	A 1 3179	F 4 3190	B 2 3200	D 4 3213	C 4 3223	C 2 7107	B 1	
2113	B 3 2151	B 2 2190	D 3 2213	B 3 2226	C 4 3110	B 4 3122	C 3 3133	D 3 3146	D 5 3157	C 2 3172	A 1 3181	F 6 3191	F 5 3202	D 5 3214	C 4 3227	B 6 7111	E 4	
2125	C 3 2153	B 2 2191	E 5 2215	E 2 3102	B 4 3111	C 4 3123	E 3 3135	C 4 3148	C 6 3159	A 2 3173	A 1 3182	F 6 3192	F 5 3206	D 5 3215	C 4 3233	B 5 7119	D 1	



TUNER Adjustment table

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz			108 MHz	check		7....9V
			87.5MHz	check		1.3....2V
AM (2 band version) 530 - 1700kHz			1700kHz	5108		8.5V ± 0.1V
			530kHz	check		1V ± 0.3V
LW 153 - 279kHz			279kHz	5108	6	8.5V ± 0.1V
			153kHz	check		1V ± 0.1V
MW (3 band version) 522 - 1611kHz			1611kHz	2142		8.5V ± 0.1V
			522kHz	check		1.1V ± 0.3V
FM IF						
FM	98 MHz 1mVrf mod = 1kHz Δf = 75kHz	A	98MHz	5105	1 / 2	0V ± 20mV
STEREO CROSTALK						
FM	98MHz 1mVrf 90% L + 9% pilot	A	98MHz	check	3	low < 1V
				3131	4	R min. out
SEARCH SENSITIVITY						
FM	98MHz 15µV mod = 1kHz Δf = 75kHz	A	98MHz	3125	5	Switches just from High to Low
AM - IF						
MW	1494kHz Δf = 10kHz low as posible		1494kHz	5104	7	symmetrical and max height
AM - RF						
MW mod= 1 kHz 30% AM	558kHz	B	558kHz	5107	7	MAX
	1494kHz		1494kHz	2141		
MW only /01/17 mod= 1 kHz 30% AM	560kHz		560kHz	5107		MAX
	1600kHz		1600kHz	2141		
LW mod= 1 kHz 30% AM	156kHz		156kHz	5109		MAX
	270kHz		270kHz	2140		



digital tuner f1920 eva.00630

MECHANICAL PARTS

401	4822 462 71808	POWER
402	4822 410 61734	PRESET HINGE
403	4822 426 51527	FRONT
404	4822 413 51401	KNOB
406	4822 535 93289	POWER ROD
407	4822 426 51526	FRONT PIECE
408	4822 209 31002	DISPLAY
409	4822 410 61733	NOSE HINGE SIDE
411	4822 450 61837	WINDOW
412	4822 410 61735	NOSE HINGE CENTRE
413	4822 413 51402	ROTARY ENCODER
414	4822 462 41888	FOOT
415	4822 410 61732	SELECT HINGE
416	4822 462 41887	LEG VILT
417	4822 276 13231	POWER SWITCH
419	4822 321 10791	CORD SET
420	4822 146 31056	MAINS TRAFO
421	4822 466 62112	TRAFO RUBBER
422	4822 532 52403	SPACER
423	4822 532 60948	BUSH
424	4822 265 20542	PIN JACK
425	4822 532 52404	SPACER
426	4822 265 20553	PIN JACK
427	4822 290 61066	PUSH TERMINAL
429	4822 210 10472	ANTENNA TERMINAL

MISCELLANEOUS

1101	4822 210 10474	FM TUNER MODULE
1110	4822 210 10472	ANTENNA TERMINAL
1111	4822 290 61066	PUSH TERMINAL
1113	4822 265 20553	PIN JACK
1401	4822 276 13231	POWER SWITCH
1406	4822 265 20542	PIN JACK
1407	4822 272 10302	VOLT SELECT (ONLY/01)
1410	4822 267 31462	POWER CONNECTOR
1465	4822 276 13114	TACT SWITCH
1466	4822 276 13114	TACT SWITCH
1467	4822 276 13114	TACT SWITCH
1468	4822 276 13114	TACT SWITCH
1469	4822 276 13114	TACT SWITCH
1470	4822 276 13114	TACT SWITCH
1471	4822 276 13114	TACT SWITCH
1472	4822 276 13114	TACT SWITCH
1473	4822 276 13114	TACT SWITCH
1474	4822 276 13114	TACT SWITCH
1475	4822 276 13114	TACT SWITCH
1476	4822 276 13114	TACT SWITCH
1477	4822 276 13213	TACT SWITCH
1478	4822 276 13114	TACT SWITCH
1480	4822 276 13213	TACT SWITCH
1481	4822 276 13213	TACT SWITCH
1482	4822 276 13114	TACT SWITCH
1483	4822 276 13114	TACT SWITCH
1484	4822 276 13114	TACT SWITCH
1485	4822 276 13213	TACT SWITCH
1486	4822 276 13114	TACT SWITCH
1487	4822 276 13114	TACT SWITCH
1495	4822 413 51402	ROTARY ENCODER
	4822 736 21327	IFU FT920
	4822 303 50063	FM DIPOLE ANTENNE
	4822 303 40056	AM FRAME AERIAL
	4822 321 22832	SBC1072

CAPACITORS

2101	5322 122 34099	470pF 10% 63V
2102	5322 122 34099	470pF 10% 63V
2103	4822 124 40433	47µF 20% 25V
2104	4822 121 42408	220nF 5% 63V
2105	5322 122 32965	18pF 5%NPO 50V
2107	4822 122 31385	22pF 50V
2108	5322 122 32654	22nF 10% 63V
2109	5322 122 32654	22nF 10% 63V
2110	5322 122 32654	22nF 10% 63V
2113	5322 122 32661	56pF 5% 50V
2114	4822 124 41678	22µF 20% 25V
2115	4822 124 40239	0,47µF 20% 63V
2116	5322 121 42386	100nF 5% 63V
2117	4822 121 51093	6,8nF 5% 250V
2118	4822 121 51093	6,8nF 5% 250V
2119	4822 124 40244	2,2µF 20% 63V
2120	4822 124 40244	2,2µF 20% 63V
2121	4822 124 41554	220µF 20% 10V
2123	4822 124 40246	4,7µF 20% 63V
2124	4822 124 40246	4,7µF 20% 63V
2125	4822 122 33177	10nF 20% 50V
2126	4822 122 32597	6,8nF 10% 63V
2129	4822 124 40242	1µF 20% 63V
2131	4822 124 40435	10µF 20% 50V
2140	4822 125 60102	30 pF
2141	4822 125 60101	10 pF
2142	4822 125 60102	30 pF
2143	5322 122 32269	6,8pF 5% 50V
2144	4822 121 42408	220nF 5% 63V
2145	4822 121 51263	510pF 1% 400V
2146	4822 121 70082	430pF 1% 400V
2147	5322 122 32654	22nF 10% 63V
2148	5322 122 32452	47pF 5% 50V
2149	4822 122 33177	10nF 20% 50V
2150	5322 122 32654	22nF 10% 63V
2151	5322 122 34099	470pF 10% 63V
2152	4822 124 40242	1µF 20% 63V
2153	5322 122 34099	470pF 10% 63V
2154	5322 122 32481	15pF 5% 50V
2155	5322 122 32965	18pF 5%NPO 50V
2156	4822 124 40433	47µF 20% 25V
2158	4822 122 33339	4,7nF 10% 50V 0805
2159	4822 122 33339	4,7nF 10% 50V 0805
2160	4822 124 41631	1,5µF 50V
2161	4822 122 32927	220nF
2162	4822 122 10166	22nF 30% 16V
2165	4822 124 40433	47µF 20% 25V
2166	4822 122 33496	100nF 10% 63V
2167	4822 124 40244	2,2µF 20% 63V
2168	4822 124 40244	2,2µF 20% 63V
2169	4822 124 40196	220µF 20% 16V
2196	5322 122 32448	10pF 5% 50V
2210	4822 124 41643	100µF 20% 16V
2215	4822 122 32575	220pF 10% 500V
2216	4822 122 32575	220pF 10% 500V
2219	4822 122 32927	220nF
2224	4822 122 32575	220pF 10% 500V
2225	4822 122 32575	220pF 10% 500V
2226	5322 122 32654	22nF 10% 63V
2401	4822 121 43526	47nF 5% 100V
2402	4822 121 43526	47nF 5% 100V
2403	4822 124 80047	1000µF 20% 35V
2404	4822 124 41525	100µF 20% 25V
2405	4822 122 10158	1nF 10% 50V
2406	4822 124 40433	47µF 20% 25V
2407	4822 124 40433	47µF 20% 25V

2408	5322124 22094	220µF 20% 50V	
2409	5322 124 22094	220µF 20% 50V	
2410	4822 124 22427	47µF 20% 35V	
2411	4822 122 31466	330pF 10% 50V	
2424	5322 124 21643	22µF 20% 40V	
2425	4822 124 40435	10µF 20% 50V	
2426	4822 121 42408	220nF 5% 63V	
2427	4822 122 10177	10nF 20% 25V	
2428	4822 122 10166	22nF 30% 16V	
2429	4822 124 41576	2,2µF 20% 50V	
2430	4822 122 10166	22nF 30% 16V	
2433	4822 121 51252	470nF 5% 63V	
2434	4822 121 51252	470nF 5% 63V	
2435	4822 121 51252	470nF 5% 63V	
2456	4822 124 22794	47µF 20% 10V	
2481	4822 122 10166	22nF 30% 16V	

RESISTORS

3100	4822 050 21501	150Ω 1% 0,6W	
3101	4822 050 21501	150Ω 1% 0,6W	
3102	4822 051 20224	220k 5% 0,1W	
3103	4822 051 20272	2k7 5% 0,1W	
3104	4822 051 20154	150k 5% 0,1W	
3105	4822 051 20562	5k6 5% 0,1W	
3106	4822 051 20829	82Ω 5% 0,1W	
3107	4822 051 20104	100k 5% 0,1W	
3108	4822 116 52224	470Ω 5% 0,5W	
3109	4822 051 20562	5k6 5% 0,1W	
3110	4822 051 20391	390Ω 5% 0,1W	
3111	4822 051 20229	22Ω 5% 0,1W	
3112	4822 051 20331	330Ω 5% 0,1W	
3113	4822 050 22201	220Ω 1% 0,6W	
3114	4822 051 20472	4k7 5% 0,1W	
3115	4822 051 20391	390Ω 5% 0,1W	
3116	4822 051 20229	22Ω 5% 0,1W	
3117	4822 051 20331	330Ω 5% 0,1W	
3118	4822 050 22201	220Ω 1% 0,6W	
3120	4822 053 10101	100Ω 5% 1W	
3121	4822 051 20272	2k7 5% 0,1W	
3122	4822 051 20562	5k6 5% 0,1W	
3123	4822 051 20223	22k 5% 0,1W	
3124	4822 051 20103	10k 5% 0,1W	
3125	4822 100 11682	47k 30%LIN 0.2W	
3127	4822 051 20103	10k 5% 0,1W	
3128	4822 051 20103	10k 5% 0,1W	
3129	4822 051 20103	10k 5% 0,1W	
3131	4822 100 11679	4.7k 30%LIN 0.2W	
3132	4822 051 20103	10k 5% 0,1W	
3133	4822 051 20333	33k 5% 0,1W	
3134	4822 050 15602	5k6 1% 0,4W	
3135	4822 051 10008	0Ω 5% 0,25W	
3140	4822 051 20821	820Ω 5% 0,1W	
3141	4822 051 20821	820Ω 5% 0,1W	
3142	4822 051 20472	4k7 5% 0,1W	
3143	4822 051 20821	820Ω 5% 0,1W	
3144	4822 051 20331	330Ω 5% 0,1W	
3145	4822 051 20271	270Ω 5% 0,1W	
3146	4822 051 20151	150Ω 5% 0,1W	
3147	4822 050 15602	5k6 1% 0,4W	
3148	4822 051 20104	100k 5% 0,1W	
3149	4822 051 20472	4k7 5% 0,1W	
3150	4822 051 20561	560Ω 5% 0,1W	
3151	4822 050 24702	4k7 1% 0,6W	
3152	4822 051 20103	10k 5% 0,1W	
3155	4822 050 22201	220Ω 1% 0,6W	
3156	4822 051 20153	15k 5% 0,1W	
3157	4822 051 20472	4k7 5% 0,1W	
3158	4822 050 24702	4k7 1% 0,6W	
3159	4822 051 20104	100k 5% 0,1W	
3160	4822 051 20104	100k 5% 0,1W	
3162	4822 050 23901	390Ω 1% 0,6W	
3163	4822 051 20103	10k 5% 0,1W	
3164	4822 051 20473	47k 5% 0,1W	
3165	4822 050 21002	1k 1% 0,6W	
3166	4822 050 21002	1k 1% 0,6W	
3167	4822 050 21002	1k 1% 0,6W	
3170	4822 051 20223	22k 5% 0,1W	
3171	4822 051 20103	10k 5% 0,1W	
3172	4822 051 20472	4k7 5% 0,1W	
3173	4822 051 20223	22k 5% 0,1W	
3174	4822 051 20474	470k 5% 0,1W	
3175	4822 051 20474	470k 5% 0,1W	
3176	4822 051 20222	2k2 5% 0,1W	
3177	4822 051 20222	2k2 5% 0,1W	
3178	4822 051 20222	2k2 5% 0,1W	
3179	4822 051 20222	2k2 5% 0,1W	
3180	4822 050 22201	220Ω 1% 0,6W	
3181	4822 051 20223	22k 5% 0,1W	
3182	4822 051 20223	22k 5% 0,1W	
3183	4822 050 21003	10k 1% 0,6W	
3184	4822 051 20332	3k3 5% 0,1W	
3185	4822 051 20103	10k 5% 0,1W	
3186	4822 050 21003	10k 1% 0,6W	
3187	4822 051 20103	10k 5% 0,1W	
3188	4822 051 20223	22k 5% 0,1W	
3189	4822 051 20223	22k 5% 0,1W	
3190	4822 051 20479	47Ω 5% 0,1W	
3191	4822 051 20008	0Ω 5% 0,1W	
3192	4822 051 20008	0Ω 5% 0,1W	
3194	4822 051 20472	4k7 5% 0,1W	
3196	4822 051 20008	0Ω 5% 0,1W	
3197	4822 051 20008	0Ω 5% 0,1W	
3198	4822 051 20103	10k 5% 0,1W	
3200	4822 051 20008	0Ω 5% 0,1W	
3202	4822 051 20008	0Ω 5% 0,1W	
3223	4822 051 20104	100k 5% 0,1W	

3225	4822 050 21002	1k 1% 0,6W	
3233	4822 051 10102	1k 2% 0,25W	
3236	4822 051 20008	0Ω 5% 0,1W	
3402	4822 050 22203	22k 1% 0,6W	
3403	4822 116 52197	56Ω 5% 0,5W	
3404	4822 116 52197	56Ω 5% 0,5W	
3405	4822 050 21002	1k 1% 0,6W	
3406	4822 050 21002	1k 1% 0,6W	
3407	4822 052 10479	47Ω 5% 0,33W	
3408	4822 052 10479	47Ω 5% 0,33W	
3409	4822 050 24702	4k7 1% 0,6W	
3410	4822 052 10101	100Ω 5% 0,33W	
3411	4822 050 22203	22k 1% 0,6W	
3413	4822 050 21003	10k 1% 0,6W	
3414	4822 052 10478	4Ω7 5% 0,33W	
3420	4822 050 24702	4k7 1% 0,6W	
3424	4822 053 12151	150Ω 5% 3W	
3425	4822 050 22202	2k2 1% 0,6W	
3426	4822 050 14709	47Ω 1% 0,4W	
3427	4822 050 21003	10k 1% 0,6W	
3428	4822 116 52234	100k 5% 0,5W	
3429	4822 050 25603	56k 1% 0,6W	
3431	4822 050 22202	2k2 1% 0,6W	
3432	4822 050 21003	10k 1% 0,6W	
3433	4822 050 24702	4k7 1% 0,6W	
3434	4822 052 10228	2Ω2 5% 0,33W	
3435	4822 052 10228	2Ω2 5% 0,33W	
3451	4822 050 24702	4k7 1% 0,6W	
3452	4822 050 24703	47k 1% 0,6W	
3453	4822 050 24702	4k7 1% 0,6W	
3454	4822 050 24703	47k 1% 0,6W	
3455	4822 050 21803	18k 1% 0,6W	
3456	4822 051 10101	100Ω 2% 0,25W	
3457	4822 052 10109	10Ω 5% 0,33W	
3462	4822 050 24702	4k7 1% 0,6W	
3463	4822 050 24702	4k7 1% 0,6W	
3464	4822 050 24702	4k7 1% 0,6W	
3465	4822 050 24702	4k7 1% 0,6W	
3466	4822 050 21003	10k 1% 0,6W	
3467	4822 050 21003	10k 1% 0,6W	
3468	4822 050 21003	10k 1% 0,6W	
3469	4822 050 24702	4k7 1% 0,6W	
3470	4822 050 24702	4k7 1% 0,6W	
3471	4822 050 24702	4k7 1% 0,6W	
3472	4822 050 24702	4k7 1% 0,6W	
3473	4822 050 24702	4k7 1% 0,6W	
3474	4822 050 24702	4k7 1% 0,6W	
3475	4822 050 24702	4k7 1% 0,6W	
3476	4822 050 26803	68k 1% 0,6W	
3477	4822 050 26803	68k 1% 0,6W	
3478	4822 050 26803	68k 1% 0,6W	
3479	4822 050 26803	68k 1% 0,6W	
3480	4822 050 21002	1k 1% 0,6W	
3481	4822 050 21002	1k 1% 0,6W	
3482	4822 050 21002	1k 1% 0,6W	
3483	4822 050 21002	1k 1% 0,6W	
3484	4822 050 21002	1k 1% 0,6W	
3485	4822 050 21002	1k 1% 0,6W	
3490	4822 050 24702	4k7 1% 0,6W	

COILS AND FILTERS

5001	4822 146 31056	MAINS TRANSTO
5101	4822 157 53192	COIL
5102	4822 242 71341	CER.FILTER 10,7Mc
5103	4822 242 71341	CER.FILTER 10,7Mc
5104	4822 157 63029	IF COIL AM
5105	4822 157 63803	Q DET.COIL
5106	4822 157 63802	BIRDY FILTER COIL
5107	4822 157 63799	MW AERIAL COIL
5108	4822 157 63804	AM OSCIL.COIL
5109	4822 157 63801	LW AERIAL COIL
5110	4822 242 71878	CER FILTER 450kHz
5111	4822 242 81147	RESONATOR 19kHz
5112	4822 242 72976	RESONATOR 7,2MHz
5113	4822 242 71341	CER.FILTER 10,7Mc
5114	4822 152 20699	COIL 560µH
5492	4822 242 73769	RESONATOR 4,19MHz

DIODES

6101	4822 130 34174	BZX79-C4V7
6102	4822 125 50611	CHIPVARICAP
6109	4822 130 30621	1N4148
6401	4822 130 30621	1N4148
6402	5322 130 32184	BYV27-50
6403	5322 130 32184	BYV27-50
6405	4822 130 34233	BZX79-C5V1
6406	4822 130 30621	1N4148
6407	4822 130 34281	BZX79-C15
6408	5322 130 30684	1N4002
6409	5322 130 30684	1N4002
6410	4822 130 34379	BZX79-C27
6411	4822 130 31253	BZX79-C2V4
6413	4822 130 80928	BZX79-C30
6434	4822 130 34173	BZX79-C5V6
6435	4822 130 30621	1N4148
6436	4822 130 30621	1N4148
6437	4822 130 30621	1N4148
6461	4822 209 31002	FTD DISPLAY

TRANSISTORS & IC's

7101	4822 130 60163	2SC1047
7102	4822 130 60163	2SC1047

7103	4822 209 31001	LA1851N
7104	5322 130 60068	BC558C
7105	4822 209 73435	LC7217
7106	5322 130 60068	BC558C
7107	5322 130 41982	BC848B
7108	4822 130 44196	BC548C
7109	4822 130 44196	BC548C
7110	5322 130 44779	BC338-40
7111	5322 130 41982	BC848B
7112	4822 130 60163	2SC1047
7113	4822 130 44196	BC548C
7114	5322 130 44779	BC338-40
7115	4822 130 41024	BF245B
7116	4822 130 60163	2SC1047
7117	5322 130 44779	BC338-40
7118	5322 130 44779	BC338-40
7119	5322 130 41983	BC858B
7120	4822 130 44196	BC548C
7121	5322 130 41983	BC858B
7122	5322 130 41983	BC858B
7401	5322 130 42701	BD645
7402	4822 130 40824	BD136
7413	4822 130 40937	BC548B
7431	4822 130 40823	BD135
7432	4822 130 40937	BC548B
7434	4822 130 40937	BC548B
7451	4822 130 44197	BC558B
7452	4822 130 40937	BC548B
7471	4822 209 31003	MICRO CONTROLLER
7481	4822 209 31006	IC X24C02